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INTEROFFICE CORRESPONDENCE

DATE October 4, 1994
TO O Erlich, ERPD, x6957
FROM M A Siders, EG&G Geochemist, IAOU/D&D, Bldg 080, X6933 *MS*
SUBJECT REVIEW COMMENTS FOR DRAFT REPORT ENTITLED "FINAL REPORT ON THE INVESTIGATION OF PLUTONIUM CONCENTRATION FLUCTUATIONS IN POND C-2 - MAS-010-94
DOE Order 4700 1
Action None Required

1.0 COMMENTS ON TECHNICAL CONTENT

Page one, first paragraph

This paragraph is replete with inappropriate and nonsensical sentences. One example of such nonsensical phrasing states that "Turnaround times for plutonium analyses at these essentially limit of detection levels being as long as they are, discharges may obviously be made in good conscience at a time when the plutonium levels exceed 0.05 pCi/L." The reader can *guess* what the author is *trying* to say, but taken as written, we are told that "detection levels are as long as they are," which is completely nonsensical. We are also informed that, in good conscience, we may release water containing greater than 0.05 pCi/L of plutonium.

Page one, second paragraph, last sentence

In a professionally inappropriate commentary, the author states "Accordingly, an understanding of what is happening would seem to have an extremely high priority for DOE to become proactive rather than waiting reactively for various "hot spots" to garner media attention." (The author does, however, receive a point for creativity in coining the phrase, "reactive waiting.")

Page three, Table 1

There is no indication if the plutonium was measured in samples of filtered or unfiltered water. There is no reference as to where the analyses were performed, or what analytical method was used.

Page four, paragraph four

Here the author tells us that a "lack of recent atmospheric testing indicates this contribution should be negligible." Using a lack of testing to provide non-data, which can then be interpreted to provide a valid conclusion about the untested parameter, is a novel approach to science. However, I don't think such non-data will hold up in court.

Page four, paragraph four

Mention is made of "Litaor's studies," but no publications are referenced.

Page five. Table 2.

The value of the data presented in this table is questionable, because the physical state of the sample (filtered or unfiltered) is not indicated, no error values accompany the reported results, the types and comparability of the analytical methods are not discussed, and no mention is made of interlaboratory bias

Page 7. last sentence

The last sentence states that "The morphometry of Pond C-2 lends well to mixing with a maximum depth of 9 8 feet for this study " Again, the reader can *guess* what the author is *trying* to say, but if taken as written, the author tells us that morphometry and the maximum depth can be mixed for this study I doubt that many readers will buy this imaginative mixture

Page 12. first paragraph

Hidden away on page 12 is perhaps the most compelling argument for future ecological studies sorption of plutonium onto the siliceous cell walls of diatoms and the fecal pellets of zooplankton

References Cited

No list of references was included in the report

2 0 **COMMENTS ON QUALITY OF WRITING**

The "stream-of-consciousness" style of the writing found throughout much of the report is wholly inappropriate for a technical document The most cogent section is largely a compilation of the results of limnological research

The use of emotional expletives has no place in a technical report It is inappropriate to include such phrases as "it is not too surprising " or " results are anxiously awaited " or "Unfortunately, time has not permitted their analysis this fiscal year" or " it would be of value and interest " or "Budgetary constraints being an unfortunate fact of current RFETS decisions " The inclusion of such commentary in a purportedly scientific report reflects the professional immaturity of the author

"Data" is the plural form of "datum," therefore "data are "

Slang has no place in a technical report, so one does not " speak scientifically to Dissolved Organic Carbon " in a technical document Also, "Dissolved Organic Carbon" is not a "proper" name that requires capitalization

3 0 **TECHNICAL MERIT OF REPORT**

This report contributes minimally toward the understanding of plutonium mobility and transport at the Rocky Flats Site, and the author does not present a compelling argument as to why he should be funded for additional research Indeed, the author's lack of skill in presenting the results of this research project argues against funding for additional work For research to be valuable, the author must be capable of effectively communicating the results of the research

This is a poorly written, poorly organized report The technical merit of the study has been largely hidden beneath the disorganized and sorry quality of the text The reader is given tables of incomplete data, an elementary encyclopedic discussion of limnology and aquatic biology, the results of ecological measurements in Pond C-2, personal commentaries by the author, and no credible explanation for the fluctuations in plutonium activities in Pond C-2

Although the title of the paper leads the reader to expect a technical discussion on plutonium mobility and transport in a limnological system, the paper never delivers much insight on the problem If this study examined plutonium activities in unfiltered samples, did the author examine the possible correlation between total suspended solids (TSS) and plutonium activities? The author tells us that

"Insufficient data " have been received for TSS, yet TSS is probably the most important variable related to plutonium concentrations. Was not the measurement of TSS included in the work plan for this study? Other reports from the Rocky Flats Site have noted strong correlations ($r=0.91$ to 0.99) with TSS for various radionuclide species in samples of unfiltered groundwater (see "Update on Boundary Wells Analysis of Data for the First Quarter of 1994", report prepared 6-27-94, Geosciences files)

The author casually mentions a planned study to examine the distribution coefficients (K_D) of plutonium at various water temperatures. However, aside from a few general sentences, no thought-out research strategy is provided. On page 16, the reader is informed that "An Environmental Institute proposal to study the plutonium fluctuations in Pond C-2 was submitted and funded" but no details are provided.

4.0 RECOMMENDATIONS

The poor quality of the writing and the inclusion of personal commentary by author make this report unsuitable for publication, even as an "in-house" document. Certainly, such a document should not be released to DOE or the public.

The author should attempt to learn the skills of writing a technical paper, and should "refresh" his knowledge of basic grammar and writing. I do not know the author, but guess that he may be a very recent college graduate without previous experience in writing a technical paper for publication. I encourage the author to study some of the many books available on technical writing; the U.S. Geological Survey has published a particularly useful text covering all aspects of technical writing (see Suggestions to Authors of the Reports of the United States Geological Survey, seventh edition, revised and edited by W.R. Hansen, U.S. Government Printing Office, 1991, 289 pp.). This hardcover text is reasonably priced, and will prove an invaluable aid for any technical writer.

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cc

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